

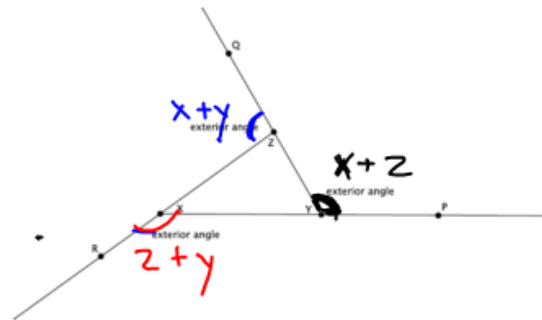
The exterior angle is equal to the sum of the 2 remote interior angles.
 (Not connected)

Lesson 14: More on the Angles of a Triangle

Classwork

Exercises 1–4

Use the diagram below to complete Exercises 1–4.



1. Name an exterior angle and the related remote interior angles.
2. Name a second exterior angle and the related remote interior angles.
3. Name a third exterior angle and the related remote interior angles.
4. Show that the measure of an exterior angle is equal to the sum of the related remote interior angles.

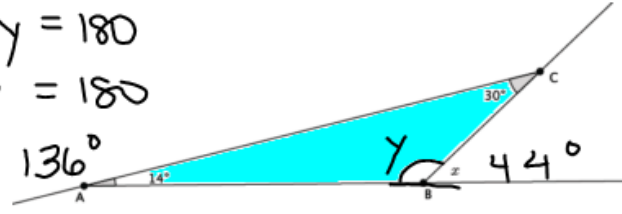
Example 1

Find the measure of angle x .

$$14 + 30 + y = 180$$

$$44 + y = 180$$

$$y = 136^\circ$$



$$136 + x = 180$$

$$-136 \quad -136$$

$$x = 44^\circ$$

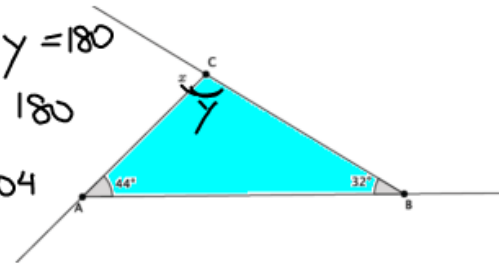
Example 2

Find the measure of angle x .

$$44 + 32 + y = 180$$

$$76 + y = 180$$

$$y = 104$$



$$104 + x = 180$$

$$x = 76^\circ$$

Example 3

Find the measure of angle x .

Handwritten solution for Example 3:

$$-121 + x = 180^\circ$$

$$\underline{-121}$$

$$x = 59^\circ$$

Example 4

Find the measure of angle x .

Handwritten solution for Example 4:

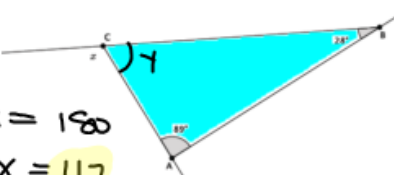
$$129 = 45 + x$$

$$\underline{-45} \quad \underline{-45}$$

$$84^\circ = x$$

Exercises 5–10

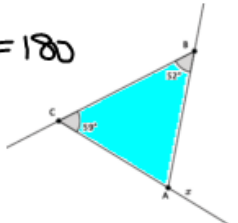
★ 5. Find the measure of angle x . Present an informal argument showing that your answer is correct.



$63 + x = 180$
 $x = 117$

$89 + 28 + y = 180$
 $117 + y = 180$
 $y = 63$

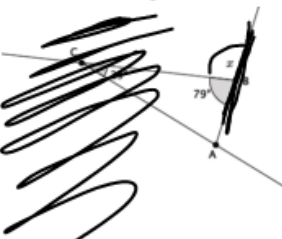
★ 6. Find the measure of angle x . Present an informal argument showing that your answer is correct.



$69 + x = 180$
 $x = 111^\circ$

$59 + 52 + y = 180$
 $111 + y = 180$
 $y = 69^\circ$

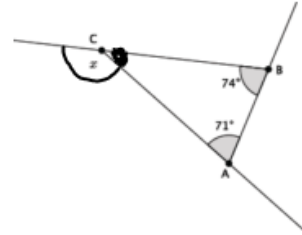
7. Find the measure of angle x . Present an informal argument showing that your answer is correct.



$79 + x = 180$
 -79

$x = 101^\circ$

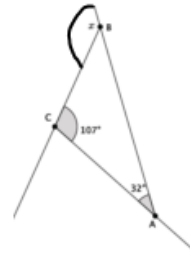
8. Find the measure of angle x . Present an informal argument showing that your answer is correct.



$$x = 74 + 71$$

$$x = 145^\circ$$

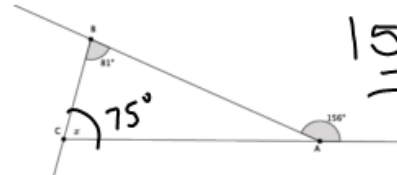
9. Find the measure of angle x . Present an informal argument showing that your answer is correct.



$$x = 107 + 32$$

$$x = 139^\circ$$

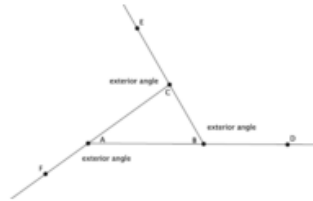
10. Find the measure of angle x . Present an informal argument showing that your answer is correct.



$$156 = x + 81$$

$$\begin{array}{r} 156 = x + 81 \\ -81 \\ \hline 75 = x \end{array}$$

Lesson Summary

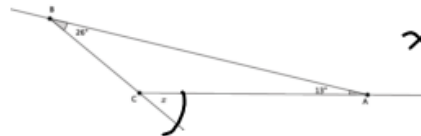


The sum of the remote interior angles of a triangle is equal to the measure of the exterior angle. For example, $\angle CAB + \angle ABC = \angle ACE$.

Problem Set

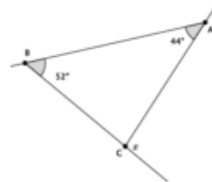
For each of the problems below, use the diagram to find the missing angle measure. Show your work.

- Find the measure of angle x . Present an informal argument showing that your answer is correct.

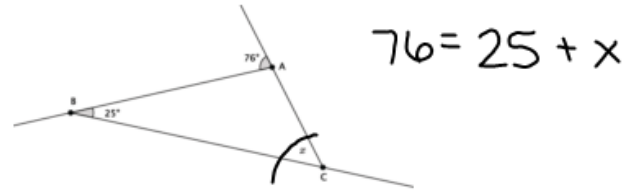


$$x = 26 + 36$$

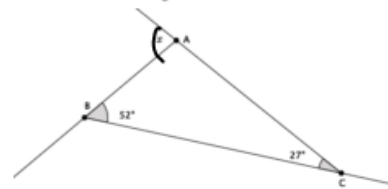
- Find the measure of angle x .



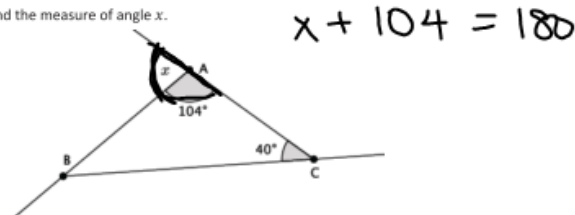
3. Find the measure of angle x . Present an informal argument showing that your answer is correct.



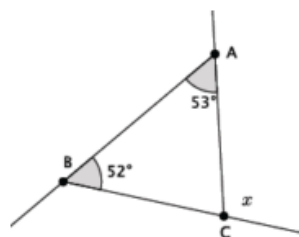
4. Find the measure of angle x .



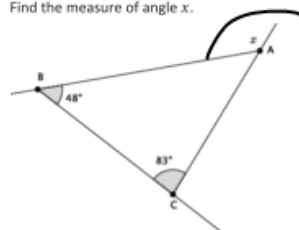
5. Find the measure of angle x .



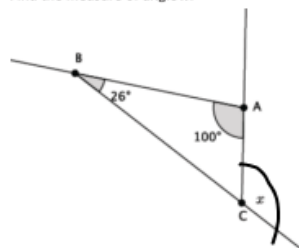
6. Find the measure of angle x .



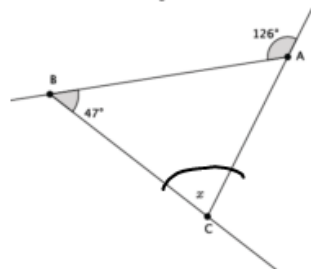
7. Find the measure of angle x .



8. Find the measure of angle x .



9. Find the measure of angle x .



10. Write an equation that would allow you to find the measure of angle x . Present an informal argument showing that your answer is correct.

